AUG 1 3 2001 B

SEQUENCE LISTING

RECEIVED

AUG 2 0 2001

TECH CENTER 1600/2900

	1	
<110>	EXELIXIS,	INC.

<120> Insect p53 Tumor Suppressor Genes and Proteins

<130> insect p53 EX00-015

<140> US 09/524,101

<141> 2000-03-13

<150> 09/268,969

<151> 1999-03-16

<150> 60/184,373

<151> 2000-02-23

<160> 22

<170> PatentIn version 3.0

<210> 1

<211> 1573

<212> DNA

<213> Drosophila melanogaster

400 4						
<400> 1 aaaatccaaa	tagtcggtgg	ccactacgat	tctgtagttt	tttgttagcg	aatttttaat	60
atttagcctc	cttccccaac	aagatcgctt	gatcagatat	agccgactaa	gatgtatata	120
tcacagccaa	tgtcgtggca	caaagaaagc	actgattccg	aggatgactc	cacggaggtc	180
gatatcaagg	aggatattcc	gaaaacggtg	gaggtatcgg	gatcggaatt	gaccacggaa	240
cccatggcct	tcttgcaggg	attaaactcc	gggaatctga	tgcagttcag	ccagcaatcc	300
gtgctgcgcg	aaatgatgct	gcaggacatt	cagatccagg	cgaacacgct	gcccaagcta	360
gagaatcaca	acatcggtgg	ttattgcttc	agcatggttc	tggatgagcc	gcccaagtct	420
ctttggatgt	actcgattcc	gctgaacaag	ctctacatcc	ggatgaacaa	ggccttcaac	480
gtggacgttc	agttcaagtc	taaaatgccc	atccaaccac	ttaatttgcg	tgtgttcctt	540
tgcttctcca	atgatgtgag	tgctcccgtg	gtccgctgtc	aaaatcacct	tagcgttgag	600
cctttgacgg	ccaataacgc	aaaaatgcgc	gagagcttgc	tgcgcagcga	gaatcccaac	660
agtgtatatt	gtggaaatgc	tcagggcaag	ggaatttccg	agcgtttttc	cgttgtagtc	720
cccctgaaca	tgagccggtc	tgtaacccgc	agtgggctca	cgcgccagac	cctggccttc	780
aagttcgtct	gccaaaactc	gtgtatcggg	cgaaaagaaa	cttccttagt	cttctgcctg	840
gagaaagcat	gcggcgatat	cgtgggacag	catgttatac	atgttaaaat	atgtacgtgc	900

	•					
cccaagcggg	atcgcatcca	agacgaacgc	cagctcaata	gcaagaagcg	caagtccgtg	960
ccggaagccg	ccgaagaaga	tgagccgtcc	aaggtgcgtc	ggtgcattgc	tataaagacg	1020
gaggacacgg	agagcaatga	tagccgagac	tgcgacgact	ccgccgcaga	gtggaacgtg	1080
tcgcggacac	cggatggcga	ttaccgtctg	gctattacgt	gccccaataa	ggaatggctg	1140
ctgcagagca	tcgagggcat	gattaaggag	gcggcggctg	aagtcctgcg	caatcccaac	1200
caagagaatc	tacgtcgcca	tgccaacaaa	ttgctgagcc	ttaagaaacg	tgcctacgag	1260
ctgccatgac	ttctgatctg	gtcgacaatc	tcccaggtat	cagatacctt	tgaaatgtgt	1320
tgcatctgtg	gggtatacta	catagctatt	agtatcttaa	gtttgtatta	gtccttgttc	1380
gtaaggcgtt	taacggtgat	attccccttt	tggcatgttc	gatggccgaa	aagaaaacat	1440
ttttatattt	ttgatagtat	actgttgtta	actgcagttc	tatgtgacta	cgtaactttt	1500
gtctaccaca	acaaacatac	tctgtacaaa	aaagccaaaa	gtgaatttat	taaagagttg	1560
tcatattttg	caa					1573

<210> 2

<211> 385

<212> PRT

<213> Drosophila melanogaster

<400> 2

Met Tyr Ile Ser Gln Pro Met Ser Trp His Lys Glu Ser Thr Asp Ser 1 5 10 15

Glu Asp Asp Ser Thr Glu Val Asp Ile Lys Glu Asp Ile Pro Lys Thr 20 25 30

Val Glu Val Ser Gly Ser Glu Leu Thr Thr Glu Pro Met Ala Phe Leu 35 40 45

Gln Gly Leu Asn Ser Gly Asn Leu Met Gln Phe Ser Gln Gln Ser Val 50 55 60

Leu Arg Glu Met Met Leu Gln Asp Ile Gln Ile Gln Ala Asn Thr Leu 65 70 75 80

Pro Lys Leu Glu Asn His Asn Ile Gly Gly Tyr Cys Phe Ser Met Val $85 \hspace{1.5cm} 90 \hspace{1.5cm} 95$

Leu Asp Glu Pro Pro Lys Ser Leu Trp Met Tyr Ser Ile Pro Leu Asn 100 105 110

Lys Leu Tyr Ile Arg Met Asn Lys Ala Phe Asn Val Asp Val Gln Phe 115 120 125

Lys Ser Lys Met Pro Ile Gln Pro Leu Asn Leu Arg Val Phe Leu Cys

130 135 140 Phe Ser Asn Asp Val Ser Ala Pro Val Val Arg Cys Gln Asn His Leu 155 Ser Val Glu Pro Leu Thr Ala Asn Asn Ala Lys Met Arg Glu Ser Leu Leu Arg Ser Glu Asn Pro Asn Ser Val Tyr Cys Gly Asn Ala Gln Gly Lys Gly Ile Ser Glu Arg Phe Ser Val Val Val Pro Leu Asn Met Ser Arg Ser Val Thr Arg Ser Gly Leu Thr Arg Gln Thr Leu Ala Phe Lys Phe Val Cys Gln Asn Ser Cys Ile Gly Arg Lys Glu Thr Ser Leu Val 225 Phe Cys Leu Glu Lys Ala Cys Gly Asp Ile Val Gly Gln His Val Ile 250 His Val Lys Ile Cys Thr Cys Pro Lys Arg Asp Arg Ile Gln Asp Glu 260 Arg Gln Leu Asn Ser Lys Lys Arg Lys Ser Val Pro Glu Ala Ala Glu 280 Glu Asp Glu Pro Ser Lys Val Arg Arg Cys Ile Ala Ile Lys Thr Glu 290 295 Asp Thr Glu Ser Asn Asp Ser Arg Asp Cys Asp Asp Ser Ala Ala Glu 310 Trp Asn Val Ser Arg Thr Pro Asp Gly Asp Tyr Arg Leu Ala Ile Thr 325 330 Cys Pro Asn Lys Glu Trp Leu Leu Gln Ser Ile Glu Gly Met Ile Lys 340 Glu Ala Ala Glu Val Leu Arg Asn Pro Asn Gln Glu Asn Leu Arg Arg His Ala Asn Lys Leu Leu Ser Leu Lys Lys Arg Ala Tyr Glu Leu

Pro 385

<210> 3 <211> 2600

<211> 2000 <212> DNA

<213> Leptinotarsa decemlineata

<400> 3

gtgtttagtt attgttcggg ggctgttttt ttaattaaaa atttcacggg taaatctttg

120 ttgtcttttc tttttctaat tgtatcagaa tagctttttt aactgtgaaa accggaaggg atgtettete agteagaett tttaceteca gatgtteaaa attteetett ggeagaaatg 180 240 gaaggggaca atatggataa tctaaacttt ttcaaggacg aaccaacttt gaatgattta 300 aattattcaa acatcctaaa tggatcaata gttgctaatg atgattcaaa gatggttcat cttatttttc cgggagtaca aacaagtgtc ccatcaaatg atgaatacga tggtccatat 360 gaatttgaag tagatgttca tcccactgtg gcaaaaaatt cgtgggtgta ctctaccacc 420 480 ctgaataaag tttatatgac aatgggcagt ccatttcctg tagatttcag agtatcacat 540 cgaccccga acccattatt catcaggage actcccgttt acagtgctcc ccaatttgct caagaatgtg tttaccggtg cctaaaccat gaattctctc ataaagagtc tgatggagat 600 ctcaaggaac acattcgccc tcatatcata agatgtgcca atcagtatgc tgcttactta 660 720 ggtgacaagt ctaaaaatga acgtctcagc gttgtcatac cattcggtat cccgcagacg 780 ggtactgaaa gtgttagaga aattttcgaa tttgtttgca aaaattcttg cccaagtcct ggaatgaata gaagagctgt ggaaataata ttcactttgg aggataatca aggaactatc 840 900 tatggacgca aaacattaaa tgtgagaata tgctcttgtc caaaacgtga taaagagaaa 960 gatgaaaagg ataacactgc caacactaat ctgccgcatg gcaaaaagag aaaaatggag aagccatcaa agaaacccat gcagacacag gcagaaaatg ataccaaaga gtttactctg 1020 1080 accataccgc tggtgggtcg acataatgaa caaaatgtgt tgaagtattg ccatgatttg 1140 atggccgggg aaatcctgcg aaatatcggc aatggtactg aagggccgta caaaatagct 1200 ttaaacaaaa taaacacgtt gatacgtgaa agttccgagt gaccttatca attctatgta 1260 tatttcttat acaattccat tttcatattt ccatttgata ataagaaaca ttttagcacc ttttaatcct acactgcagg gaagtcaata tttctttagt tttttgcatg atattgtttg 1320 1380 ttataacatt tttttttca acaacaggtg acttgatttt tgtaaggtat ctcattattt 1440 atgtttaaga cctaaaacac gaaaccaaaa acatgaatgg tcattgaatt tggctcgata atcaatccaa tgttctttaa agtaatatcg acctgttcac aacttttgtg atgcactgaa 1500 tggcttttta ttattattat ttttcagcat tgtacatcat acttgcatag tttcagtttt 1560 1620 aaatttttca aatgtttcat ttattttcat tcttacacct gaacttggat tttggacaca tggctttcac aatgttctat cacgaacagt atgataagcc aaagtaagag ttgataatag 1680 ttcatattaa tatctattgt aacaccgact attgttatat aaatagtcgt ttttttgtta 1740

cttttcttgc	tttattttat	acacttgagt	caagtgtagt	cagtacattg	actatgctgg	1800
aaaacctgtt	ttgagtttat	ttttacttac	attcagttct	catcattaga	aattgtttat	1860
tttttgtgtg	caatatttac	gaaaaatggt	gcaatactat	aataggaaca	ttaataaagt	1920
aacttgaaag	catagaggtg	gtgaattttg	tttttgatca	actttttgaa	atttatgcgc	1980
cattctataa	gccagttttt	tttgataaat	tcaaaattca	cgaataggta	tcaacctgat	2040
tgcatgctta	ttctatgttt	gtcctaaagc	aggtctctat	aaaacttctc	taaaagttgt	2100
gcagagcaaa	taacaaataa	ttttttaatg	gattatatca	attcatgaac	tggtttaatt	2160
gaaagagtag	attattctat	tgggttcaca	aaaatataaa	taatgtgtta	ctatctggat	2220
catttgtttt	tttttcattg	agctatattt	tgtcattgta	ttgttgaact	ttccctaaat	2280
cccagtgcca	tagtcgacga	tcggtctcgc	tcccatccat	caattattcg	aaatctcatt	2340
tattttaaag	actgaggacg	gggtgggact	gtcagtgtat	ctgtttaatg	agaaccatct	2400
tgtactagga	ttgatatgtg	aatctatgag	taggtgcatt	tttatatata	tatctttatg	2460
tttatttagt	attattgtac	aggttatgta	ctctagtgga	agaatacata	acctaattat	2520
tatatatgtt	cgttaatata	caaattttt	acgtttttaa	aatatatttt	ctaaatattc	2580
aacaaaaaaa	aaaaaaaaaa					2600

<210> 4

<400> 4

Met Ser Ser Gln Ser Asp Phe Leu Pro Pro Asp Val Gln Asn Phe Leu 1 5 10 15

Leu Ala Glu Met Glu Gly Asp Asn Met Asp Asn Leu Asn Phe Phe Lys $20 \hspace{1.5cm} 25 \hspace{1.5cm} 30$

Asp Glu Pro Thr Leu Asn Asp Leu Asn Tyr Ser Asn Ile Leu Asn Gly 35 40 45

Ser Ile Val Ala Asn Asp Asp Ser Lys Met Val His Leu Ile Phe Pro 50 55 60

Gly Val Gln Thr Ser Val Pro Ser Asn Asp Glu Tyr Asp Gly Pro Tyr 65 70 75 80

Glu Phe Glu Val Asp Val His Pro Thr Val Ala Lys Asn Ser Trp Val 85 90 95

Tyr Ser Thr Thr Leu Asn Lys Val Tyr Met Thr Met Gly Ser Pro Phe

<211> 354

<212> PRT

<213> Leptinotarsa decemlineata

100 105 110

Pro Val Asp Phe Arg Val Ser His Arg Pro Pro Asn Pro Leu Phe Ile 115 120 125

Arg Ser Thr Pro Val Tyr Ser Ala Pro Gln Phe Ala Gln Glu Cys Val 130 135 140

Tyr Arg Cys Leu Asn His Glu Phe Ser His Lys Glu Ser Asp Gly Asp 145 150 155 160

Leu Lys Glu His Ile Arg Pro His Ile Ile Arg Cys Ala Asn Gln Tyr 165 170 175

Ala Ala Tyr Leu Gly Asp Lys Ser Lys Asn Glu Arg Leu Ser Val Val 180 185 190

Ile Pro Phe Gly Ile Pro Gln Thr Gly Thr Glu Ser Val Arg Glu Ile 195 200 205

Phe Glu Phe Val Cys Lys Asn Ser Cys Pro Ser Pro Gly Met Asn Arg 210 215 220

Arg Ala Val Glu Ile Ile Phe Thr Leu Glu Asp Asn Gln Gly Thr Ile 225 230 235 240

Tyr Gly Arg Lys Thr Leu Asn Val Arg Ile Cys Ser Cys Pro Lys Arg 245 250 255

Asp Lys Glu Lys Asp Glu Lys Asp Asn Thr Ala Asn Thr Asn Leu Pro 260 265 270

His Gly Lys Lys Arg Lys Met Glu Lys Pro Ser Lys Lys Pro Met Gln 275 280 285

Thr Gln Ala Glu Asn Asp Thr Lys Glu Phe Thr Leu Thr Ile Pro Leu 290 295 300

Val Gly Arg His Asn Glu Gln Asn Val Leu Lys Tyr Cys His Asp Leu 305 310 315 320

Met Ala Gly Glu Ile Leu Arg Asn Ile Gly Asn Gly Thr Glu Gly Pro 325 330 335

Tyr Lys Ile Ala Leu Asn Lys Ile Asn Thr Leu Ile Arg Glu Ser Ser 340 345 350

Glu Trp

<210> 5

<211> 1291

<212> DNA

<213> Tribolium castaneum

<400> 5

acgcgtccgg ccaacttaac ctaaaaattt gttttcgatg cctactagat ttaaaaacaa

ttgattcaaa	tcgtggattt	ttattattta	aatcatgagc	caacaaagtc	aattttcgga	120
catcattcct	gatgttgata	aatttttgga	agatcatgga	ctcaaggacg	atgtgggaag	180
aataatgcac	gaaaacaacg	tccatttagt	aaatgacgac	ggagaagaag	aaaaatactc	240
taatgaagcc	aattacactg	aatcaatttt	ccccccgac	cagcccacaa	acctaggcac	300
tgaggaatac	ccaggccctt	ttaatttctc	agtcctgatc	agccccaacg	agcaaaaatc	360
gccctgggag	tattcggaaa	aactgaacaa	aatattcatc	ggcatcaacg	tgaaattccc	420
cgtggccttc	tccgtgcaaa	accgccccca	gaacctgccc	ctctacatcc	gcgccacccc	480
cgtgttcagc	caaacgcagc	acttccaaga	cctggtgcac	cgctgcgtcg	gccaccgcca	540
ccccaagac	cagtccaaca	aaggcgtcgc	ccccacatt	ttccagcaca	ttattaggtg	600
caccaacgac	aacgccctat	actttggcga	taaaaacaca	gggacgagac	tcaacatcgt	660
cctgcctttg	geceaeeece	aggtggggga	ggacgtggtc	aaggagtttt	tccagtttgt	720
gtgcaaaaac	tectgecett	tggggatgaa	tcggcggccg	attgatgtcg	ttttcaccct	780
ggaggataat	aagggggagg	ttttcgggag	gaggttggtg	ggggtgaggg	tgtgttcgtg	840
tccgaagcgt	gacaaggaca	aggaggagaa	ggacatggag	agtgctgtgc	ctccaaggag	900
gaagaagagg	aagttgggga	atgatgagcg	aagggttgtg	ccacagggga	gctccgataa	960
taaaatattt	gcgttaaata	ttcatattcc	tggcaagaag	aattatttac	aagccctcaa	1020
gatgtgtcaa	gatatgctgg	ctaatgaaat	tttgaaaaaa	caggaacaag	gtggcgacga	1080
ttctgctgat	aagaactgtt	ataatgagat	aactgttctc	ttgaacggca	cggccgcctt	1140
tgattagttt	atttctatat	ttaattttat	actttgtact	tatgcaatat	tccagtttac	1200
ttttgtaata	tttttattaa	taaatttcta	cgttttaaaa	aaaaaaaaa	aaaaaaaaa	1260
aaaaaaaaa	aaaaaaaaa	aaaaaaaaa	a			1291

<210> 6 <211> 350 <212> PRT

Met Ser Gln Gln Ser Gln Phe Ser Asp Ile Ile Pro Asp Val Asp Lys 1 5 10 15

Phe Leu Glu Asp His Gly Leu Lys Asp Asp Val Gly Arg Ile Met His 20 25 30

<213> Tribolium castaneum

<400> 6

Glu Asn Asn Val His Leu Val Asn Asp Gly Glu Glu Glu Lys Tyr Ser Asn Glu Ala Asn Tyr Thr Glu Ser Ile Phe Pro Pro Asp Gln Pro Thr Asn Leu Gly Thr Glu Glu Tyr Pro Gly Pro Phe Asn Phe Ser Val Leu Ile Ser Pro Asn Glu Gln Lys Ser Pro Trp Glu Tyr Ser Glu Lys Leu Asn Lys Ile Phe Ile Gly Ile Asn Val Lys Phe Pro Val Ala Phe 105 Ser Val Gln Asn Arg Pro Gln Asn Leu Pro Leu Tyr Ile Arg Ala Thr 120 Pro Val Phe Ser Gln Thr Gln His Phe Gln Asp Leu Val His Arg Cys 135 Val Gly His Arg His Pro Gln Asp Gln Ser Asn Lys Gly Val Ala Pro 150 145 His Ile Phe Gln His Ile Ile Arg Cys Thr Asn Asp Asn Ala Leu Tyr 170 Phe Gly Asp Lys Asn Thr Gly Thr Arg Leu Asn Ile Val Leu Pro Leu 180 185 Ala His Pro Gln Val Gly Glu Asp Val Val Lys Glu Phe Phe Gln Phe 200 Val Cys Lys Asn Ser Cys Pro Leu Gly Met Asn Arg Arg Pro Ile Asp Val Val Phe Thr Leu Glu Asp Asn Lys Gly Glu Val Phe Gly Arg Arg Leu Val Gly Val Arg Val Cys Ser Cys Pro Lys Arg Asp Lys Asp Lys Glu Glu Lys Asp Met Glu Ser Ala Val Pro Pro Arg Arg Lys Lys Arg Lys Leu Gly Asn Asp Glu Arg Arg Val Val Pro Gln Gly Ser Ser Asp 280 Asn Lys Ile Phe Ala Leu Asn Ile His Ile Pro Gly Lys Lys Asn Tyr 295 Leu Gln Ala Leu Lys Met Cys Gln Asp Met Leu Ala Asn Glu Ile Leu 315 Lys Lys Gln Glu Gln Gly Gly Asp Asp Ser Ala Asp Lys Asn Cys Tyr 325 330

Asn Glu Ile Thr Val Leu Leu Asn Gly Thr Ala Ala Phe Asp 340 345 350

<210><211><211><212><213>	DNA	oolium	casta	aneum
<400>	7			
gtacgad	caat	acaaac	ccgcc	cgatt
ttccagt	tgg	aagact	tcaa	attca

gtacgacaat acaaaccgcc cgatttttcc cacactttcc acccaataat ttgctcaatt 60

ttccagttgg aagacttcaa attcaacatc aaccaaagct cgtacctctc agcccccatt 120

ttcccccca gcgagccgct cgagctgtgc aacaccgagt accccggccc cctcaacttc 180

gaggtgtttg tggaccccaa cgtgctcaaa aacccctggg aatactcccc aattctcaac 240

aaaatttaca tcgatatgaa acacaaattc ccgattaatt tcagcgtgaa gaaggccgat 300

cctgagcgca ggctttttgt cagagttatg ccgatgtttg aggaagacag atatgtgcaa 360

gaattggtgc ataggtgcat ctgtcacgaa caattgacag atccgaccaa tcacaacgtt 420

tcggaaatgg tggctcagca catcattcgg tgtgataaca acaatgctca gtatttcggg 480

508

gataagaacg ctgggaagag actgagta

<210> 8 <211> 169 <212> PRT <213> Tribolium castaneum

<400> 8

Val Arg Gln Tyr Lys Pro Pro Asp Phe Ser His Thr Phe His Pro Ile 1 5 10 15

Ile Cys Ser Ile Phe Gln Leu Glu Asp Phe Lys Phe Asn Ile Asn Gln 20 25 30

Ser Ser Tyr Leu Ser Ala Pro Ile Phe Pro Pro Ser Glu Pro Leu Glu 35 40 45

Leu Cys Asn Thr Glu Tyr Pro Gly Pro Leu Asn Phe Glu Val Phe Val 50 55 60

Asp Pro Asn Val Leu Lys Asn Pro Trp Glu Tyr Ser Pro Ile Leu Asn 65 70 75 80

Lys Ile Tyr Ile Asp Met Lys His Lys Phe Pro Ile Asn Phe Ser Val 85 90 95

Lys Lys Ala Asp Pro Glu Arg Arg Leu Phe Val Arg Val Met Pro Met 100 105 110

Phe Glu Glu Asp Arg Tyr Val Gln Glu Leu Val His Arg Cys Ile Cys

115	20 125
His Glu Gln Leu Thr Asp Pro Tl 130 135	Chr Asn His Asn Val Ser Glu Met Val 140
Ala Gln His Ile Ile Arg Cys As 145 150	sp Asn Asn Ala Gln Tyr Phe Gly 155 160
Asp Lys Asn Ala Gly Lys Arg Le 165	eu Ser
<210> 9 <211> 433 <212> DNA <213> Heliothis virescens	
<400> 9 gcacgagatg aagtgcaact ttagcgtg	gca attcaactgg gactatcaga aggcgccgca 60
tatgttcgtg cggtctaccg tcgtgttc	ctc cgatgaaacg caggcggaga agcgggtcga 120
acgatgtgtg cagcatttcc atgaaag	ctc cacttctgga atccaaacag aaattgccaa 180
aaacgtgctc cactcgtccc gggagatc	cgg tacccagggc gtgtactact gcgggaaggt 240
ggacatggca gactcgtggt actcagtg	gct ggtggagttt atgaggacca gctcggagtc 300
ctgctcccat gcgtaccagt tctcctg	caa gaactcttgt gcaaccggca ttaataggcg 360
ggctattgcc attattttta cgctggaa	aga tgctatgggc aacatccacg gccgtcagaa 420
agtaggggg agg	433
<pre>agtaggggcg agg <210> 10 <211> 144 <212> PRT <213> Heliothis virescens</pre>	433
<210> 10 <211> 144 <212> PRT	433
<210> 10 <211> 144 <212> PRT <213> Heliothis virescens <400> 10	er Val Gln Phe Asn Trp Asp Tyr Gln 10 15
<210> 10 <211> 144 <212> PRT <213> Heliothis virescens <400> 10 His Glu Met Lys Cys Asn Phe Se 1 5	er Val Gln Phe Asn Trp Asp Tyr Gln
<210> 10 <211> 144 <212> PRT <213> Heliothis virescens <400> 10 His Glu Met Lys Cys Asn Phe Se 1 5 Lys Ala Pro His Met Phe Val Ar 20	er Val Gln Phe Asn Trp Asp Tyr Gln 10 15 rg Ser Thr Val Val Phe Ser Asp Glu 25 30 lu Arg Cys Val Gln His Phe His Glu
<pre><210> 10 <211> 144 <212> PRT <213> Heliothis virescens <400> 10 His Glu Met Lys Cys Asn Phe Se 1</pre>	er Val Gln Phe Asn Trp Asp Tyr Gln 10 15 rg Ser Thr Val Val Phe Ser Asp Glu 25 30 lu Arg Cys Val Gln His Phe His Glu
<pre><210> 10 <211> 144 <212> PRT <213> Heliothis virescens <400> 10 His Glu Met Lys Cys Asn Phe Se 1</pre>	er Val Gln Phe Asn Trp Asp Tyr Gln 10 15 rg Ser Thr Val Val Phe Ser Asp Glu 25 30 lu Arg Cys Val Gln His Phe His Glu 0 45 hr Glu Ile Ala Lys Asn Val Leu His

				85					90					95		
Ser	Ser	Glu	Ser 100	Cys	Ser	His	Ala	Tyr 105	Gln	Phe	Ser	Cys	Lys 110	Asn	Ser	
Cys	Ala	Thr 115	Gly	Ile	Asn	Arg	Arg 120	Ala	Ile	Ala	Ile	Ile 125	Phe	Thr	Leu	
Glu	Asp 130	Ala	Met	Gly	Asn	Ile 135	His	Gly	Arg	Gln	Lys 140	Val	Gly	Ala	Arg	
<211 <212	<210> 11 <211> 26 <212> DNA <213> Drosophila melanogaster															
<400		11														0.5
ccat	gct	gaa g	gcaat	caaco	ca co	gato	1									26
<210 <211 <212 <213	> >	12 30 DNA Drosc	ophi]	La me	elanc	ogast	cer									
<400		12														
ggaa	.cac	acg c	caaat	taag	gt gg	ıttgo	gatgg	1								30
<210 <211 <212 <213	> : > :	13 23 DNA Drosc	ophil	la me	elanc	ogast	er									
<400		13														
tgat	ttt	gac a	agegg	gacca	ec go	ıg										23
<210 <211 <212 <213	> 2 >]	14 28 DNA Drosc	phil	a me	elanc	ogast	er									
<400 ggaa		14 tct t	tteg	icccõ	ja ta	ıcacç	ıag									28
<210 <211 <212 <213	> 2 > I	15 27 ONA Oroso	phil	a me	elanc	gast	er									
<400 ggca		15 aga a	ıagca	ıctga	ıt to	:cgaç	ıg									27
<210	> 1	16														

<71T>	28						
<212>	DNA						
<213>	Dro	sophila mela	anogaster				
<400>	16						
ggaatct	gat	gcagttcagc	cagcaatc				28
<210>	17						
	23						
	DNA		1				
<213>	Dros	sophila mela	anogaster				
	17						
ggatcgc	atc	caagacgaac	gcc				23
	18						
	2742	25					
	DNA	111					
		sophila mela	anogaster				
	18						<i>c</i> 0
tagccac	tcg	ctagtttata	gttcaaggtg	aacatacgta	agagttttgt	ggcactggac	60
tggaaat	agg	ctgctagtcc	tttgtgttcg	gccatagcgt	taaaaattta	agccaacgcc	120
agtcgtc	ctg	cgcccatgtt	gctgcaacat	tetggetteg	tgtcatgcca	ctgaatgttt	180
cacatta	ttt	aacccccttt	attttttt	tttgtgtggc	actggccaaa	ggtccaaagg	240
ggcgaca	tgc	tgcaggggcg	tggcctgcag	ctgcttgcaa	cgggcaatta	ttgcgcagtt	300
attgcat	gtc	gtgtgcaatg	cctatgaatt	attacgtata	cacagtgtgt	cctcggcaat	360
aacgaaa	gtc	cgggaggggg	cggggcggta	ttcatgctgc	agttgcccat	aaattcaacg	420
aaattgc	tac	agtttttatt	tgtaatgact	gggcatggta	agttaatatg	attcttcata	480
ctgatta	agt	gcttttgtta	cttttttaat	tattcaagta	aaaatattaa	tttgtgtttc	540
atgggac	ttt	ttgtagtagt	taccctacta	ctacattaaa	cattaatttc	aaagaagtag	600
atatacg	agt	aaatgggcaa	tatgaaaatt	tgaaaaaggt	aaagcttatg	atactaacta	660
atgccaa	atg	aaaactagga	gtatgataat	aatatgaaga	tagcccacca	ggctatccca	720
aaatcgt	cat	caaatccaat	ggtgttcatt	aaattaggta	atcgcatgtg	cccttatgtc	780
aaccata	tcg	ccgctcaacc	aagtcatttc	ggtcgctgag	gcaatcgaga	tatggggcgc	840
caccgac	ctt	ggccaacatg	ctccacattg	ggctccaagt	ggcaaccgca	aaggtcacgc	900
acagttc	gcc	attgcgaatc	gcatactgcc	aatggaaact	acattgcgta	tctggtggcc	960
ctttgat	aac	gctctaatta	aaggctacct	gccactaatt	agtgatagac	aatcgtcggg	1020

ggagttcggg tggcatcgtt ggcaggcact taacccaaga caggggggcc aactggcatt 1080 ggatggccgt ttttgaattc gtatgtcgga agcagtcgat gcagggttgg gggggatgga 1140 aacaaatgtt gtcaacgcca aaaccactga actgttaaaa gtgccattga atccaacaag 1200 gatgetggge geaactgtge aacetaacaa actgteggaa agacageage aacatgggea 1260 tgcatggctt gatactggga gtctgttcga tggatcccac ttgaaccgaa ccgtactgaa 1320 1380 ccgtgccccg gccagatgag gcgccccacc caacgccact cttgaaaacc ccaagccctt tgcacgcgct aaatagtttt gtttattgca cattgaaacc gagccagcga gcaattccgg 1440 1500 tggctgctcc gcgcgcgaca cactccagcg atctaatcag caatctcgac gacgaccggg ctgacatggg gtttctcata cgctcggtta gacgcgacgt cgacgctcga tcgaatattt 1560 tcccaatgca ctggcagaaa atgtgtggaa gtgtgagatt aagctcataa attagtagtg 1620 1680 cacttaatgt ggaaaatatt agaaacaaca gtgaacagtt gattggttct cttataaatt 1740 ttattaatta ttgaacattt gaagaaagat attgattaaa tcaactttgg atgtatacat atatataaaa aagtatatga tgactttcat gttgagaggt cataactttg taatgatatt 1800 1860 ggttctagtc atcatttcgt gaaacagctg tgcaagcatt cgattatatg tggtatgtaa 1920 tttatttggg ttaatatatt tttcgcagtg tactgcttct gctgcgtcac ttcacattcg tatcatttac atacgcagca ctgcggagtg agtcgctgag tacctggcgc tctggggtct 1980 ctgggatete tgggettggg gatggatete caetegatga teteteegee tgggageeea 2040 gatcatcgtc tgctatttgc aagtcgagag tcgcgcgagt cggacgtaca atcgccgcag 2100 cggaatcaag tgtgataaaa gtgaacagaa ctttagccaa gtgcatttgg ctaatggaag 2160 tggtggcaaa agtcaaagcc acacgttata ctcgaattta aaaacaaata aataatgcat 2220 2280 aagcaggcga gtttgaagta attagcacaa cgatgatgct ggcggccaac tgacccacat cgggaaatcg ctctaattca tatttgttgt cgagtgggcc aggataacag gataacagga 2340 tactgctggc tcatttgcat ttgcatatat gcaaatagtt cgatctgcag gcgattgagt 2400 gaccgaaagt gttggactgt gccaaataca taaccagcta acgggcaaaa agccactgaa 2460 taaatggccc ttgttactcg gttcgtgtaa tgcgtctacg agtttagccc gtgttctgac 2520 2580 cgagaatcaa ttaaaattta ttgcacgagc atgccaaaca attcgcggtt gcagccacaa 2640 aaacgcatct gaaaaacaat gccaccactc caatcacttg tgaccgcccc ccggctatgc 2700 aaattagcca ttgcagcgat tttgctaatt ctccagctaa acgctagtgg tgagttctca 2760 gttggctaat atatatat gtatatatat gaaatatgaa aaatcggaaa acccctttgc

2820 aaacattgct ccgcgcttag ctcatgatga tgccaattcc gagagcgttt tgaagatgca 2880 ctcgccattt gcattcaaaa gccaagcgaa taaatggaga agcaaaacca aaactgcata gatcaattta caagtcggca aaggggttta ctcgctgcat gtgcatgtca gctgctatta 2940 tagatttatt tattggcaaa caccctgaga acgagtttca ttggggggcc taagtgggag 3000 aatgacctac acaggaaagt gctcttaact aagcaactaa cttctggaaa agcggaagtg 3060 gagagattaa gtactatctt atagatatgc cagaatatca aaaaagtatc taccagatac 3120 cttgaaagat ctctgcatat ctcaattgca attcatgata agtttgttaa gttacgtttt 3180 3240 ttaatttcca attcaacctt tcaattagtt aataacgcca atctcagaca ttcctaaacc ccctccctac ttaagggtaa atcccgatga tgcttgattg attttctcat tgctcagcta 3300 3360 tgcataaaaa tatcatatta attgatgagc acgagcttag ctaccagaat tgaaatccat 3420 atgactgctc ggcaatttga aaaatgcgtt ggttcccagt catgcgcatc ccgttggatt 3480 gaaacccaca ttcatggcat tccgttctgc cccccagttg cgctgctgct caagtgtccg 3540 ttgcaccagt tgcagctgca gaagatcgtc ggattccggc caccgctgga gtatctgaat 3600 gcggataatc ggatctacgg accggaaatg gtgagcaact tcaagactcg caacggccaa 3660 caggaacttc cggtcagcca ggtgtgctgg cgcatctgca acgaggatcc cgattgcatt 3720 gcctatgtcc atctgctgga cacggacgag tgccatggct actcgtactt cgagcgaacc 3780 tegegetate tggecattte gggtgaactg cetetggtgg cagaeggega ggeegtette 3840 tacgaaaaga cctgcctccg aggtgagtaa ttctccagcc aaacctccgg aagtggccgt gateegeete taateeatte egacettgea gtteeegatg egtgeegtgg gegtetetgg 3900 3960 gcactgacca aaatccccgg cagcacgctg gtctaccaca gcaagaagac catttcgacg 4020 ctggtcacgc ggcgtgagtg cgccgagcgc tgcttcttcg aaacccagtt ccgatgcctc tccgcctcct ttgcgccctc ctatcggaac aatcgtgagc ggtaattgac tatttgttgt 4080 4140 ttgttgtttg ctatttggtt gtttgttgtt gtcggttgtc agtgggtggt tgttgtagtt 4200 gctggtcgcc ggacaaatga atagcttttg ttgtgcattt ttaatgcatg gtcgagactt ttcgccggat tatgacatca ctccgaggat ggtgatggga taggttagga ctattcaaca 4260 4320 atgtgtagca agctaataat atgataatat gatattataa tacgaaagaa agatatatcc 4380 agaagacatc atcttttcga agctatgttc ttttccaaac aaatttttac aaaataagat 4440 aagtattttt gaaaagtgag atcatcagca atcatctaga ttttcttaaa ctcaagtata

4500 tatcgaattc ttctgaaata accgaactga cttggtcata atcgacacat catcgtttag 4560 aagttaataa agcaaccttt aaccctcctc tttcgtagct tccgcggcga ggcgggtcct ggccagcqtc cgtctccccg cctcggcaga tgtatgctga gcgacaggga caagaccgtc 4620 cageeggaeg cetttegege ggeteeatae gaegaggagt acatggagaa ceagtgeeae 4680 gaacgggcca tcgaaagtga caactgttcc tacgagctgt acgccaacag cagtttcatc 4740 tatgcggagg ccaggtattt gggcctctcc caaaaagagg tgtgtccgcc gcgcttcgga 4800 tgtcgcgcat tatgattgta atcgaaatgg atggggggtc ggatgattga ttgatggctt 4860 4920 ctacctccgt attgcagtgt caggcgatgt gctcccacga ggcgaagttc tactgccagg 4980 gtgtctcctt ctactatgta aaccaactct cgctgtccga gtgtctcctc cactcggagg acattgtatc cctgggtccg cgaagcctga agctccgtga aaactcggtg tacatgcgga 5040 5100 gggtcaagtg cctggatggt aagatcttct ggggatgtgg tatgctcaat cttaatcgat 5160 tccttattcc gcagtccggg ttttttgcac ccgcgatgag atgaccatta agtacaatcc 5220 caaggactgg ttcgtcggca agatctatgc cagcatgcac tccaaggact gcctggccag 5280 aggatcgggc aatgggagtg ttctgctgac gctccagatc ggcagcgagg taaaggagaa ccgctgtggc atcctgcgtg cctacgaaat gacacaggaa taccaaaggt aagatgaagt 5340 ccaatgtcca gtccattttt ttaattatat catttgcatt atttagaacg ttcatatctg 5400 5460 ctctggtggt catccaaaac aatccaaatg tgcaaaccca gggcgaccgg ctcatcaagg 5520 tggatagete agageetgtg eccagegeea ttgeactgga gteeteattg gagtacaeag 5580 aacagtgagt gtattcttaa tagaatccct caaaatgctt aattctatca caatcgatac 5640 5700 ctgcagcatg ttcccacacg agggtgtggt tcactacaac agcagcactg ggccccatcc gcatcccage atctegette agattttgga tetateccae cageaegaga ecaaegaegt 5760 gcagattgga cagaacctgg aactacagat tgtggcggag tacagcccac agcagttggc 5820 5880 agagcacatg gagttgcagc tggcaccact acccgacttt cgtgctacct cgctggtggc caagacagcg gacaatgaga actttgtgct gctgatcgac gagcgaggat gtcccacaga 5940 6000 tgccagtgtg tttcccgctt tggaaagggt acacacagcc agcaggagca tgttgcgcgc tcgcttccat gccttcaagt tctcaggaac ggccaacgta agcttcgatg taaagattcg 6060 6120 cttctgcgtg gagcgctgct cgcccagcaa ttgtattagt tcatcctggc aacggagaag 6180 gcgacaggct gaccaaccag atcgtagacc ggaagaccta cgagttcaga accccgtgta

catctccacg	gtggtggatg	tggctccgca	accagacaac	tttaccagat	cgcaggagga	6240
attgcccctc	aactacaata	tccgggtgca	cggtccggac	cagagcaaca	ccaatagtta	6300
tctgtacggc	gagcggggag	tgctgctcat	tgctggcata	gacgacccgc	tgcacctgga	6360
taacgtttgc	atcaaccaga	gcctgctgat	tgcactgttc	atcttctggc	tgatctgtca	6420
agttgccctg	ctcttcggct	gtggaatggt	gctgcagcgc	taccgccggc	tggccaagct	6480
cgaggatgag	cgacgcaggc	tgcacgagga	gtacctggag	gcgaggagag	tccactgggc	6540
ggatcaaggc	ggatacacac	tctaattgac	ggctggaacg	caatgcgtat	aaaatgcatc	6600
ttaatttaat	aaacataaat	ctaacataaa	tctaacaaat	gtttgcaacc	gaggataagt	6660
tcaggagttc	ttcttgggat	ggtagtgctc	ccacttgcga	tggtttagcg	aattgaaatc	6720
cgggcagtgg	tgagcgattt	tgcgcaaata	gtcggacaac	ttgagcagct	cggtgtccgt	6780
gccacggttg	agatgagcct	gacggaatgg	gcggatcttt	aggccggact	ttgggttcat	6840
aaggaagttg	cgacggatgt	catcaaacat	gatagtgttg	ctcgagttgt	attgcttgta	6900
cagggcccag	attacaccaa	gcggctttac	gtccaccaca	cegegeteeg	gcacatgaac	6960
tgatatcatg	gcggtggagt	ccagatagaa	catcaccttg	tagttatcgt	tactggccac	7020
gcccagcagg	cgcatctttt	cctcgatcca	gcgcatgctg	gtggcggacc	agatgacaat	7080
gtcgtagtcc	tcgtaggcgg	aagtcagaaa	ctcgtgcaga	tacggacgca	ttagctccgt	7140
gcctgtttca	gcaggcgatc	ggtgatcgaa	tagggtatag	tctatgtcca	ggacaagcag	7200
cttcttgccc	tcacgcggcg	gcgctaactc	cttgatcttg	tagtctcgca	cacgacgctg	7260
caccttggcc	aaatagacgg	cggagtgctc	cacggactct	tcgcgttcat	cggcgtcatc	7320
gaagtcgtcg	accacttcgc	caatattatc	gggcaggctg	cacgcatcct	cgatatcggc	7380
ctctgtggag	cccaccatca	taagcttaaa	gttgggcttc	agctccaaag	cgctgatctt	7440
cacattgtcg	gctgctgtct	ttcctgcaag	tcattggatc	ttaaaactga	aatatcccga	7500
agcctaggag	tgtcacgcac	ctttgtactt	caggttgagc	agcttttgac	gttccggacg	7560
cacctgtgtc	ttgcggaata	tctcgtgacg	cagcacttcc	acggtgtcct	ggtcggtgag	7620
gtccaccggg	tactccttac	cactccattt	tacaatcact	accacttctt	tgacctccat	7680
cttagctggt	ttctattccg	ctattaattt	atcacaccat	atatggtaat	gtatgtttgt	7740
tggatagaat	ccagcaagtg	gtttgcaata	gtgtacctta	aagatattaa	ctaatttatt	7800
agaagaccat	ataaacagtc	gagttgtcag	aagtcgatag	atactatcga	ttgcaacgcc	7860

cggcgttatc gattgcaatc ggcttgcaat aaaaataatg attttttgat tatatttttc 7920 agagattatt aaaaaatatt ttaaattttt taaaattata tatttagcaa ttaaagaaag 7980 8040 tcatgcaaag acatgaggaa tgtccccaag ttgccaatag gcgattgttt cgccagttca ttggccacac tggtcaccag ctgaaaacac aaaaaccgat cgtacagcat aaatttagct 8100 8160 cgaaaatgga ctaaacaaag acagcgatcc ggaatccgag cggaaacata gtctgcatga 8220 actatctaac gatcctgctg tgcaaccgaa aaccgacgat gctctcgcgc cggaacaagg agaagtccca gcacaaggag ggcgtggtgg ggaagtacat gaagaaggac accccaccgg 8280 8340 atatttcggt gatcaatgtg tggagcgatc agcgggccaa gaagaaatcg ctgcagcgct 8400 gtgcgagcac ctcgcccagc tgcgagttcc atccgcgcag ctcgagcacc agtcggaaca 8460 cctactcctg cacggactcg cagccggact actaccatgc tcgacgagca cagagccaga 8520 tgcccctgca gcagcactcc cactcgcatc ctcactctct gccccacccc tcccatccgc atgtgcgtag tcatcctccc ctgccgcccc accagttccg cgccagcagc aatcagttga 8580 gtcagaacag cagcaactac gttaatttcg agcagatcga gcggatgcgc cgtcagcagt 8640 cgtcgccact gctgcagacc acatcatcgc cggcgccggg agccggagga ttccagcgca 8700 8760 gctactccac caccagegg cagcatcatc cccatctggg tggtgacage tacgatgcag 8820 atcagggcct gctaagcgcc tcctatgcca acatgttgca actgccccag cggccacact 8880 cgcccgctca ctacgccgtc ccgccgcagc agcagcagca tccacagatt catcaacagc acgcctcgac gccgtttggc tccacgctgc ggttcgatcg agctgccatg tccatcaggg 8940 9000 agcgacagcc caggtatcag ccaactaggt aaactgcctc ttgaagtact atatttgaat 9060 agatagcgcg cgattgataa agtgggtaga gataatatga gcagctcttg attaaaggaa taatccgtaa aaactacata ttgtcaaaaa gtgcttaata ttattataac ttttaaacaa 9120 9180 tgacaatgca cgaaatgttt tattttcgaa acatttattg ttcaaagatt ttttatttga 9240 taacagattg ctttatttat ttacaataag aaaagttgat gtacaaaacc ggtttctact 9300 cgccttacaa taattaaaac aataacacaa tatatgattt tctgtacgag gaatataatg 9360 gaatatatat gatatataca acatttttaa acacattttc tcttctgttt ccacagctct ccgatgcagc agcaacaaca acaacaacaa cagcagcagc agcagctgca gcacacacaa 9420 ctggcagctc acctgggegg cagctactcc agcgattcgt acccgatcta cgagaatccg 9480 tcccgcgtca tctcgatgcg cgccacgcag tcgcagcgat cggagtcgcc catctacagc 9540 9600 aatacgacgg cctcgtcggc cacgctggcc gtggttccgc agcatcatca tcagggtcac

ctggcggtgc	catctggaag	cgggggagga	tccctgagcg	gcagcggtcg	tggtggcagt	9660
tctggcagtg	ttcgcggcgc	ctctacctca	gtgcaatcac	tgtacgtccc	accgcgaact	9720
ccgcccagtg	cggttgccgg	agcgggaggc	agtgccaatg	ggtcgctgca	gaaggtacca	9780
tcacagcaat	cgctcacgga	gcccgaggag	ctgcctctgc	cgcccggctg	ggccactcag	9840
tacacgctac	acggtcggaa	atactatatt	gatcacaatg	cgcataccac	gcactggaat	9900
catccgttgg	agcgcgaagg	tctgccggtg	ggctggcggc	gggtggtgtc	caagatgcat	9960
ggcacctact	atgagaacca	gtataccggg	cagagccaac	gtcagcatcc	atgcttgacc	10020
tcctactatg	tctacacgac	gtctgcggag	ccaccgaaag	cgattcgacc	agaggcgtcg	10080
ctctatgccc	cacccacgca	cactcacaat	gcactggtgc	cggccaatcc	ctatctgctc	10140
gaggagatcc	ccaagtggtt	ggccgtctac	tcggaggcgg	actcgtccaa	ggaccacctg	10200
ctgcagttca	acatgtttag	cctgccggag	ctggagggct	tcgacagcat	gctggtgcgg	10260
ctcttcaagc	aggaactggg	caccatcgtg	ggcttctacg	agcgctaccg	gtaagtgagc	10320
ggccacatgc	cgctgcattc	teegetetee	gaaaagccac	tactctcttg	ttacaccttt	10380
cagtcgcgct	ttgatactcg	agaagaatcg	acgcgccggc	cagaaccaga	accaaaacca	10440
gtgacccggt	gaccaggtga	cgactgactc	agaccacata	ctcgccagca	gctatatgca	10500
catcatagtg	ctcctgtaat	cgacctttaa	cttatttaac	catcgactca	tcgcgaaatc	10560
agtgccttat	acgaaaccag	acgagatggt	agccaagcag	atccatgaca	gttcgaatgc	10620
cttgatgaaa	cgtagaattg	tgctacgttc	tatataacct	taatgtgatt	tgagcttggc	10680
gtttgtttgt	aatgtgagca	aagaaaatta	aactggttta	ctgatcatct	tacctgccga	10740
gcgcaattgt	aatcgatgtg	ccacctgaaa	cccacaggt	atttaacctg	ggagtccgat	10800
tcatcgacgg	atgttttgga	aattcagcgc	cgcgaagtgt	aaataaaggg	caacagttgg	10860
tggccaagtc	ttactcgact	tggcttggca	catatttccg	agttccatgc	caagttttcg	10920
attcgcttgc	aaaaattatg	cattgggcac	aagtgaatcg	tggccgattc	tgtattggca	10980
aaaaaaaaaa	cagcgctcca	atagaaagtg	aatcttatgt	ttgttttcgt	ttggctatgc	11040
ttatttttag	tcgaacctga	taattcattc	agtcgcctct	tatcgaatgc	ttataaaact	11100
ttatagtcac	tgtttctgca	ggtccctcaa	aaacagtttc	tactgctgat	aagaagtttt	11160
cgaagtctgg	ggagtattcg	gcattggaaa	ggccaaaagt	tgtgttttat	tatattttga	11220
acatattaaa	caggatacat	aaaacgagag	ttttagattg	taattacatt	tgtcatatct	11280

tttgctaaat	tgataagtaa	acagaaaata	tgactcgatg	gatattattg	actaataata	11340
tatatttagg	ggtttggtat	gattactttg	tactgtgaga	tacaagttcg	tttgtcccac	11400
agatactttt	caattcatag	cttatcctac	agatacattt	caattcatag	cttatcccgt	11460
agatacattt	ccattcattg	cttatcccac	agatacattt	tagcatattt	tttttgaaat	11520
ttgaatttga	aaaaaaagtg	tttttttt	ttttgttttg	agaactactc	gtcttgtcaa	11580
aatatttaac	tgttcccgac	tgaagtgccc	accttttcgg	ccgccgggtt	ctcaagtgca	11640
aaaataatgt	ataataaaaa	gccaagatac	gtcggcggtc	cgctctcgcc	ccacttgttg	11700
ttgctgctgc	cgctggtgcg	tegetgeege	tgccgcagtc	gacgtcgact	ccatcgctcc	11760
aatatttaaa	cggatccatt	ggatcgcgca	ctcagtcgca	ctggagagtc	gccatcgcag	11820
ccatcatcat	agcattccat	tccacttgta	gccatcggca	gtcgctcaat	cgtcagttgg	11880
gacacattat	ttaacttcat	tcttaacgtg	agtgaattga	tgtgttgggt	ggcgatcatg	11940
catatagcat	aggcaaacaa	ctgttctaat	ccgcattatc	ttaatcacaa	taatccggcg	12000
gcttatacag	atgttttgcg	ttagcagttg	gcggctaaaa	gcctctgctt	gcccacatgc	12060
cagtgaaagt	tctaatccgg	ctcaaacaga	cgcacaacaa	gcgtatctcg	tgcgtggaat	12120
catgaatgaa	taaatgggtg	ttactgttaa	ctaacaatgg	acctttttac	caatcaatcg	12180
tcttatctat	caccagaatt	gaaacagaat	tagtgaataa	cttatggtgc	atatcagttg	12240
aaacatgaag	attcgtgtga	acgatcgtga	aagatatggt	gttcgaactt	taaattaccc	12300
ttgtagttta	ccactctcat	tagttttgat	ttatgtagaa	ccaaaatttg	gatcgtgact	12360
tgcgattagt	attgcaatcg	cagtgcattg	cccaatctat	tgattatctg	caacttgtgg	12420
cagactgccg	caataattcg	acggacacta	tcagctagct	ccattgattg	agataagccc	12480
gttctcacgc	ggtgttttac	acttcttggc	aatcgccaag	tcacggccct	cgccatataa	12540
aaaatatagt	atgaacaatc	gggaatcttt	tggttttacg	atcgaccgac	aaagcccatg	12600
tatttcctgt	tacgtccatt	tgggccatat	aggcacataa	aatgggtgct	ccaacgcttg	12660
ccgtgggaaa	gtgtgctcca	attgcaaagt	tgtaacattg	agcgacattt	gatgaaggtt	12720
accgactttt	atctcgacaa	aaacacacac	gaattccaga	tgaagcgagc	gtgcgtagtt	12780
tgcactgcaa	gtttttttt	tggaacaaat	agttttatgt	ttatatcatt	ttatatcata	12840
ttatattcct	tattgattga	gtgtctgcac	gggtcattaa	attaagaagc	aaaaaaaaa	12900
aaggtgtcag	gaattgcatt	ccatactcct	acgagtagat	atcaatttca	cccgatcgtg	12960
gtcaattggt	caattgaagt	aattcacaat	tgaatcaata	caataccata	tagggcttca	13020

ttgaagaaga	tgccagcagg	actggatgct	catgcatgaa	taagttgaac	gttgaacgca	13080
agcagaatgg	atttcagcac	acaccgcctg	accactttgc	tgctcctcct	cctggccaca	13140
ggtgagatat	cgcaatccag	atattgcgat	ctaataatga	gggaatttct	cctgcccaca	13200
gttgccctgg	gaaatgccca	aagcagtcag	ctcaccgtcg	attcccatga	catcaccgtt	13260
ctgctgaaca	gcaacgagac	ttttctggtg	ttcgccaagt	gagttgccat	tgccgggaaa	13320
tccaaatcca	aaacatatgg	catcgtaaat	ctattgtgcc	cattacagcg	gattgctaga	13380
cagcgacgtg	gaagttgcgc	tgggaacaga	ttcggaggat	catttgctcc	tcgatcccgc	13440
aacgtttgtg	tatccagcgg	gcagtactcg	aaatcagtcg	gtggtgataa	ctggcctcaa	13500
agccggcaac	gtcaaagtgg	tcgcagatag	cgatgatgcg	aacaaagaga	tgtgagtaac	13560
ttcacgggaa	tcccaactgt	tcccgtacct	aattggaaaa	ttcacttatt	ttccagtgtg	13620
aaggatgtgt	tcgtacgcgt	gactgtggcc	aaatcgagag	ctttgatcta	cacctccatc	13680
atctttggct	gggtttactt	tgtggcctgg	tcggtgtcct	tctatccgca	gatctggagc	13740
aactatcgcc	gcaagtccgt	cgagggactg	aactttgatt	tcctggccct	caatatcgtg	13800
ggcttcaccc	tgtacagcat	gttcaactgc	ggcctctatt	tcatcgagga	tctgcagaac	13860
gagtacgagg	tgcgatatcc	gctgggagtg	aatcctgtga	tgctcaacga	cgtggtcttc	13920
tcactgcatg	ccatgttcgc	cacctgcatt	acgatccttc	agtgcttttt	ctatcaggta	13980
ataatatata	tagcaaatac	cattcaatag	ccttatcgcc	gaagtggcaa	cagttgtcgc	14040
attgaacact	aattgccatc	aatcaaaatg	ccaaatcatt	tgaatcacag	cggatagtta	14100
cgatatgaag	agtagataag	gttttgactt	gtaaaacatc	catactttgt	taaatttgtc	14160
cagagagcac	agcaaagggt	gtcgttcatt	gcctacggaa	tattggccat	cttcgccgtg	14220
gtggtcgtcg	tgtctgccgg	tttggccgga	ggatccgtca	tccattggct	ggactttctg	14280
tactactgca	gttacgtcaa	gctaaccatt	accatcatca	agtacgtgcc	gcaagctctg	14340
atgaactatc	gccggaagag	cacctccggc	tggagcatcg	gcaacattct	gctggatttc	14400
acgggaggaa	cgctgagcat	gctgcaaatg	attctgaatg	ctcataatta	cggtaggata	14460
tagtctatca	atttgtgatt	ttcgaatgaa	atcgtgtctg	gtttccagat	gattgggtgt	14520
cgattttcgg	tgatcccacc	aaattcggac	tgggtctgtt	ttccgtgctc	ttcgatgtgt	14580
tcttcatgct	gcagcactat	gtgttttaca	ggtgattgaa	acattgtgtg	aatatgatac	14640
ttaatctacg	attatgtcat	ctccactgta	cacttatcat	tattgctgtg	ctgttttcca	14700

tttctcccca ggcattcgag ggaatcctcg agctctgacc tcaccaccgt gaccgatgtt 14760 caaaatcgaa caaatgagtc gccgccgcg agcgaagtga cgactgagaa atattagagc 14820 tgcattatca tatgtctgct gtagagaaag acttttgtgc cagtagcgct ttatgtacat 14880 ttttagaatt gtaaatatat ccgtatgccg tagctgccta agctttgtat aattcgtgcg 14940 ttttaattga aatttagttt gactaaaatt tggaatttca ccattaaata aaacttaatt 15000 15060 ttttgtagga gccagaaatc atacggtaca ttgctcgacc attcaaaggg ctgtgcagtg aaaccaattt gctgcatacg gcgcgttatt tgcaaactaa taaatagatt gaagtattga 15120 aaaaatttca aaacagaaat tctaacttgc cgcacaatgg gcagcactgt tcgcactcgg 15180 ccaaatcctt atcgatagct tatcgatagc catggatata tgacattaag ttagccaatt 15240 teeggttagt tgacateect ggageaegga agattettge ggaeaeaaat egeaaetget 15300 aaataaaatt tatttatttg agtgcacagc catgagtctt cacaagtccg cgtcgtttag 15360 cttgactttt aaccagtgag cggagatatt ttattcggtc ttacccaaca aaataatgtt 15420 gcgccttttt gcagaaacac ttcgattgtt tcgcgtagca atagtcgcac aatttttgaa 15480 15540 gctttcaagg agttcctgga tttttgggat atcggcaacg aagtttctgc agagtcagca gttcgggtct ccagcaacgg agctttcaac ttgccgcaga gttttggcaa cgaatccaac 15600 gaatatgccc acctggctac gcctgtggat ccagcctacg gaggcaacaa cacgaacaac 15660 atgatgcagt tcacgaacaa tctggaaatt ttggccaaca ataattccga tggcaataac 15720 aaaattaatg catgcaacaa attcgtctgc cacaaggggt gagcaaattc aaaacacgcg 15780 ctccaatcga taaacattgg ctacggcgat tgttcgcgct gcgtggcgaa tggcaaaatc 15840 caaatagtcg gtggccacta cgattctgta gttttttgtt agcgaatttt taatatttag 15900 cctccttccc caacaagatc gcttgatcag atatagccga ctaagatgta tatatcacag 15960 ccaatgtcgt ggcacaaaga aaggtacagt gcggcaacaa attgatgatc gaacagtaga 16020 16080 aaccttgcat gtagcaacac gcttgtactt gcatcattcg cgcggccaac ttgtttgtgt ttgtttatcc agccaaggcg cagtttgcca ctaagttttt atttcccttt tacactttag 16140 16200 cactgattcc gaggatgact ccacggaggt cgatatcaag gaggatattc cgaaaacggt ggaggtatcg ggatcggaat tgtgagtacc tggtcacgtg gtcacatgtg gtttgcctgg 16260 ttgctaacta ttattgtttt tattattcca ggaccacgga acccatggcc ttcttgcagg 16320 gattaaacgt gagttgtgct tttaatgtgc aaagctatag Cttactaact atttaatatt 16380 attccccgca gtccgggaat ctgatgcagt tcagccaggt gggtaacatc gattagctat 16440

tgcatcttga agcgctggga cagatcggcc tgcacgagga tcagcaggaa gctggccacc gccgagaaga cattgctgat cagtcgcatg tccagctcgt acaagcccaa gggtttaatt 16560 tggtacttgg tcaccgtgac cagcagagta aagccgtgga ctgcctgacg gtagcggctg 16620 teegeatget ggagatteat eteetggaga atgactgeeg atettegggt ggeeaceaat 16680 aggtggttgc acaaatgcgt gagcaatgtg atctccgcca gcgagatgga gaggaaaacc 16740 agattgatca gcgatccaag accatcgtac ggcttgccca tgattaaggt gtccgctatg 16800 gcatagtaca gactgtagaa acccaccgtt attccgagca ggtggcatat gagcgacaga 16860 atcatggaca aggacattgg ggtcagatac tttcccgaat gcacatatat caacctatag 16920 cgatacgcca gctggtcgag ttcatccgcc aaggcgcaaa atcgctgcat gcggtagtat 16980 ttagtgtaca actttagctg gtccttcctc tgcagcagat tcacctcctg cagctgcgct 17040 17100 tecageegte tgtteagage gtacagaate teetteacea ceaceattge gecaaagtag cagttattga gaaaattcga aataattaag ggaaacagcc ggtacaaggt ccagatcaag 17160 ctcatctcgg gatgctgccg cctctgttgc agtatgaaag ccacttcaat tgttagagga 17220 17280 aaagccacgg tcttgaccag agccaaaacg atggatatgt acagcgacct gctgtccaga cggaattett ttagggtate aaagaaggge actttgetea acacettgge cacatggtea 17340 ctgattatca tttgcgacac atagttaata acagccaccg taatgttcat atagctgtac 17400 17460 agagtggtgg cgtccttcag gttgatctga ccctcctggt actccttgta gatttgccgc ccgtaaacca agctgaatgc aattgcccac agcgaagcaa aggccagatt tgcctttgag 17520 17580 aagcggaatc tttcacgacg gcccgcccga tatcgattgg ccaggagtcc gaagacggtc 17640 ataaagccta tcagtatgat cgtcagaaat ttcaccatac gccgatgcgc gtagtcgctg 17700 gtgaagtcca tttctctcga acaattaata caaactgtga gcgcactttc cacagcatta 17760 atatctgctt aattgttttc caactaccca actgatgcca tctagaggac ctgtcaagta 17820 gccggacact atcgggacac atcgcgaaac gcatgtattt caccggccgt ccagaaacca actgagcatg cgttgtgcta ctactagcca caaacaaaag agcataagaa gcgtgaggga 17880 ageggeatte ettgegtgae teageegetg eetgeaattt cataagageg acatgaegte 17940 aaagtcgctt cgaagttcac tttcagttgg aggacagaac aaaacactct tatctagccg 18000 attagcacgg tgcactcctt cccgtcgtca tcgtttagcg agaatttcaa gcacttgtga 18060 aaaatagaat agaatacaaa acaaatcgcc agtccatttg taactcgagc aagctggaac 18120

atgaagetet ateageteta tgagegeaaa gtgtgaacee ttatatgatt gegagttaag 18180 ttgacattca aataatatct tgtttttgct tacagcaatc cgtgctgcgc gaaatgatgc 18240 tgcaggacat tcagatccag gcgaacacgc tgcccaagct agagaatcac aacatcggtg 18300 gttattgctt cagcatggtt ctggatgagc cgcccaagtc tctttggatg tactcgattc 18360 cgctgaacaa gctctacatc cggatgaaca aggccttcaa cgtggacgtt cagttcaagt 18420 ctaaaatgcc catccaacca cttaatttgc gtgtgttcct ttgcttctcc aatgatgtga 18480 18540 gtgctcccgt ggtccgctgt caaaatcacc ttagcgttga gccttgtaag tgaagataac 18600 aatacagatc gaacaggatt atttaactat catttgtaca aacctttagt gacggccaat aacgcaaaaa tgcgcgagag cttgctgcgc agcgagaatc ccaacagtgt atattgtgga 18660 aatgctcagg gcaagggaat ttccgagcgt ttttccgttg tagtccccct gaacatgagc 18720 cggtctgtaa cccgcagtgg gctcacgcgc cagaccctgg ccttcaagtt cgtctgccaa 18780 aactcgtgta tcgggcgaaa agaaacttcc ttagtcttct gcctggagaa agcatggtaa 18840 ggtgacagca aaactctaga tggctagaac aaagcttaac gtgttttctt tcttgcagcg 18900 gcgatatcgt gggacagcat gttatacatg ttaaaatatg tacgtgcccc aagcgggatc 18960 gcatccaaga cgaacgccag ctcaatagca agaagcgcaa gtccgtgccg gaagccgccg 19020 aagaagatga gccgtccaag gtgcgtcggt gcattgctat aaagacggag gacacggaga 19080 gcaatgatag ccgagactgc gacgactccg ccgcagagtg gaacgtgtcg cggacaccgg 19140 atggcgatta ccgtctggct attacgtgcc ccaataagga atggctgctg cagagcatcg 19200 agggcatgat taaggaggcg gcggctgaag tcctgcgcaa tcccaaccaa gagaatctac 19260 gtcgccatgc caacaaattg ctgagcctta agagtaagca gtgaatcgga ggacaaagag 19320 attaagettt aettacegaa ettteettte agaaegtgee taegagetge eatgaettet 19380 gatctggtcg acaatctccc aggtatcaga tacctttgaa atgtgttgca tctgtggggt 19440 atactacata gctattagta tcttaagttt gtattagtcc ttgttcgtaa ggcgtttaac 19500 ggtgatattc cccttttggc atgttcgatg gccgaaaaga aaacattttt atatttttga 19560 tagtatactg ttgttaactg cagttctatg tgactacgta acttttgtct accacaacaa 19620 acatactctg tacaaaaaag ccaaaagtga atttattaaa gagttgtcat attttgcaaa 19680 catatecteg tggtgtacge caatgeecag agectactgt acceecaceg tggageacat 19740 19800 gctatgtgac atgtgtggct tgtgtgcggt caatgcactc aggatgcaac tcagctagct agctgctaat atgtcaaaat tgctgcgtcg catttacata ctttatttat acccgtatct 19860

gcacgtcttt ggttttagtt ctatgctttc aaaaaaaaa aaacaacctc aagcagggcg catgcgttgc gccagcgttg cacatgtgcg aggatgcaaa aaagtgcaac aaacaccaga 19980 tgttgacact gtgccgctgc agctgcaggc gactttagct tttgccacat gcggcagcta 20040 20100 aatgtttact ctagcccacc gatcgctgtt cattgaccta gggcaggggc attaagtgcg ccctaatcgt aacggaatga tagcctctgt gtccaaaaat tcagccaaag cggatgcact 20160 20220 cacttccatt tggggcctgt ccttcttcga ccggctgcca cttccactac cagtttggca ccacgaaaat gggtcgttca aagtgctcaa aacccagcgg agcaactcac tcaattctcg 20280 ttggacgagc gcacagaaaa gtggttttgg atacgagttg agttcgagag acctttctgc 20340 20400 actgggaaca tacatgcggc tttgtgtaac agaataataa agtacgcaaa catatctgta atacttaaag cacaaagaac aaatataaat gtatcataat ttgtttaatt atttattcga 20460 20520 ggtttccaaa caagtcattc tgataacaaa agttgtaaaa ataaaatcca ctaaaattaa 20580 atatcaccca cttctcagaa taagcacagc tgtatatact tcagtatata tttttttcag tgcacttttc ccaagcgatg caatcgcctt agaagcccaa ttaaatacgt ttctttgatt 20640 20700 ggcgggtgcc aaaaggttga caattcgaaa gtggcgcaca ctgggaggca gtgactcata atttacataa ttatttcggg aagatattaa gactcatact atattcaagc agttgtttat 20760 cattttaaac tggcagatac cccatcttta cggaccagat aaagggaaag caaacacggc 20820 20880 tgggctctta tcggctacga tcttcatccg cagttcccac tgtgcgcgtg gggaaaacaa 20940 tatggcccaa acacataaaa aacaacaaaa aaaggaaaca accacagaaa gccgggctaa 21000 gacgtcaggt gaaacgcagt agcttcactc gcgactcggc gcttccactc aaaggtgcta ccgctgccca ctcaaatctg cagctcgtag atacgaaaac cagatagcgt cgagcggctg 21060 gcgatcttca ctcaatgggg ggaaatactg ctatagagtc gaaagcttgt acacgtagtt 21120 tggcattcgc agtcgcttgt tggcgttttt agtctgctgc ctgatcttcg acgcgctgca 21180 gctgttttgg agtcgccgcg agtgccatat ttgctttgac cgcgaaaatt tctgggctaa 21240 aaacagagat atttgagata cagatacata tatctcatat cacatattag ccaattgtgg 21300 gtgcaacaag ctgtgagtga tggtggagac ggcaacgaca acgaccataa cccgcaccac 21360 caccgccgtt ccggctggtg cagtaacggt aacaggaccc actgcctcgg ccacgcccac 21420 cgcgacacag gcggccgcgc aggcgcatcg caacgatgag accacccggg ccatcttcaa 21480 totgaaagto atogtottto tgotoctoot goototggto otgotggcog totttotoaa 21540

gcacctgttg	gattacctat	tegegetggg	actcaaggag	aaggatgtca	gtggcaaggt	21600
ggcactggtg	agttgcattc	gagtgcccat	tggggctaac	aaatggctgc	aatgagcgtc	21660
tggcaaatga	gccattaata	aggctagtca	gatgcacatc	agacatggat	gcacttagaa	21720
aatgcagtcg	catttcatgt	taagtactga	cattaaaaaa	gagatatatg	tctgtgttta	21780
gatacatctt	tgggtaccaa	attaggttca	gatacttcgt	aaagaaattg	gtaatggtat	21840
actttaatcg	ttggcttcat	gtgaatttgt	tttcccagta	tccgcttcta	agtgatcttg	21900
tatctgacga	ctacttagcc	aaccagaaac	gtcacgcact	ttccttttcc	agtggctgcc	21960
tccgggtttc	caccacgccc	acctttggct	cacccacctt	ttcccctttc	ccgcttttct	22020
ttgcttttta	tttctcctct	tttttttt	tttgatgtca	ctgccattag	ggtgcggtcg	22080
atcgcttagt	actgtgttat	taatgtaaat	atttatgcgt	ttggtgccca	gcttggttag	22140
ttgttggcca	attgtttagt	tgtgtccaca	gagccgcgtc	tttggtgcca	cggacagtta	22200
atgtgacata	atttcgctgt	aagcgctgca	atcaaagtga	atctccagct	gaaatcgtgc	22260
tcatggcaac	catatcgcgc	tccaataatc	acatatgcat	cttggggcgt	cgaattatgg	22320
agaagtcaat	tgccaatggg	cgccaatgcc	actggacaag	gtcaagtgat	gatgccgctg	22380
ccgatgctcc	atatcgtaaa	gaacctgatc	gaattcggaa	cccattagca	tgcttttcag	22440
gctttttata	gtgggcgtgt	gccggccata	agcgtctcac	gtagcgtatt	aatgattcac	22500
agcggcccga	cttttgtttt	agtctcagct	tttttttcg	atcgttccct	cagatatcgt	22560
tttctcagat	acagatacac	atacagatac	atttttgttg	cggttgcaca	gtggtatttt	22620
cgggtggcag	ggactggaga	attcccatgc	caactgttag	cagcaactta	attataagat	22680
tgactttcgt	tgataagttc	tattgacatc	atggttgcgg	aattcgagtt	atttcagctc	22740
aaaaataccc	cctttttcga	caccactggc	caacggccaa	ctgcaaactg	gttttgcgtg	22800
tgtcgctata	tttatttcca	agatgaacga	aaagagcgca	aaaatgcaaa	cctcagaaag	22860
ttcacttttg	ttttcagtct	aatgtttgtg	tttacaaaca	atagagtgta	gaatttcgat	22920
gggccaaagt	atctgcaagt	gtgtagcatg	ccgggtatct	ctcagatgcg	tagataaaac	22980
tcaactactg	ttgccgctgt	taatttgcat	atgatattga	aattcttcgg	ctgttctata	23040
atcacaacaa	ctgcgcattt	gttattgttt	tccccattgc	tagtcgctaa	cgtgccaaac	23100
tctgaattga	actcattccg	gcttacattt	cgattcaccc	aactaccgca	cacccaaaac	23160
ggcggctgag	gtcacccagt	gggcttcaat	tacggtcaaa	agtcactcaa	ttgtgcccca	23220
gagggtcggc	ccaccgagcg	tatgagtaat	gccattcata	agtcgcctct	gccgctgttg	23280

ctgctgctca cataattgtc cgtaaatgag gtttttgttc aatgcgaagt cacattagct 23400 cgagttgatt gtttgcaaat taagctaatt aatttacttg agtatacgag tgtaatgtga 23460 gtaacctgtg atttaaaccc aggtgaccgg cggaggcagt gggctgggtc gcgagatctg cttggaactg gcgcggcggg gctgcaagct ggccgtcgtt gatgtcaact ccaagggatg 23520 23580 ttacgaaacg gtggagctgc tctccaagat tccacgctgc gttgccaagg cctacaaggt 23640 gagttcacta gctgcttgga tatttaatgg tttgataaca agaatcttta ttccagaacg 23700 acgtgtcatc gcctcgcgag cttcaactga tggccgccaa ggtggagaag gaactgggtc 23760 ccgtggacat tctggtcaac aatgcctccc tcatgcccat gacttcaaca cccagtctga agagegatga aategacaca atactgcage teaatetggg etectacata atggtgagtg 23820 23880 tgtgcttctg aaaatgggac aaatataaaa cttcttgatt ttgcagacca ccaaggagtt cctgccgaag atgataaacc gcaagtccgg tcatctggtg gcagtaaatg ccttagcggg 23940 taagcttact tggttaaagt gcttaccact tcattgatac ctatgtatat ataactcgca 24000 24060 tttaggtcta gttccactgc caggagcggg catctacacg gccaccaaat acggaatcga 24120 gggcttcatg gaatcgctgc gagctgagct gcgattgtcc gactgtgact acgttcgcac cacggtggcc aatgcctatc tgatgaggac cagcggagat cttccactgc tcagtgatgc 24180 ggggtaagat tggtttatag tttgggcaga tcacttggtc tcatgcggct actacattta 24240 24300 gcattgccaa gagctatccc ggactgccca caccatatgt ggccgagaag attgtcaagg gcgtgttgct gaacgagcgc atggtgtatg tgccaaaaat attcgcactc agtgtatggc 24360 tgctcaggtg agaattgaat tagcccaggt aaccagcgat tatttctaac gattattgtt 24420 gtcgccttgc tttagactgt tgcccaccaa gtggcaggat tacatgctgc ttcgcttcta 24480 ccacttcgat gtgcgcagct cccacctgtt ttactggaag tagggcacag gagaaggcac 24540 atccccacc agaagcattt actcctgttt gtttcccaat tgcagttctt tattcaactg 24600 ttgcttacgc taggtgtaca tgtttagcta tttatacgaa tctttaactt aaattaaatc 24660 tatatcctaa cattagaatt acgtccggtt ggcctttcct attttatttc gtataagccg 24720 24780 aagttgttcg gagtagcaca tcctctcgga ctgctggacg caggacctcc gttcgtagtg 24840 ccaagtgtag ttcaagtggc atcgatggac cagcttggag ccactggagc agtagtagaa 24900 gtaggcgcag ttccgtggat gtggcataaa gccatagact ccctcctggc agttgatgat attetetege gtttgcatge gattgcagga cactagatga gcaggagtac aggeettgge 24960

25020 cagtccagcc ccctcgtagc agaccatata aggataacat ggtccggcat tgggtaaaag tcgcagggta atcgccaatg gttccgcttt ctgagctggc ttcttgacca tcgaggggga 25080 tttagtggtt atgcctacgg gatcccggca tctcgacacc aactttcgat ccaaacagcg 25140 ttccaatttt tcgtcgtagt aatgaccatc caagcactcg gcctcaaagg atcctggacc 25200 ggcacaatat atgtatttgg agcaattgct agagctggcg acataaactc ccaattgtgg 25260 agcactggca cactettega actecaggge actggatega tgacecagea aggteaceaa 25320 aataattgtt aagaaggtta cagctcccat ttcatttatt tttttaacga ccgaaatagc 25380 25440 gggatgactt ctgtagactg acttcatcga tgatgggttg agtatatttt tgcatgtgct ccaactgata aagaagacaa gttattccat cgattactac gctggttatc gtctggtaga 25500 taccgctaat gagcacatgg cagtaactgc cacgcccact ctgggcggtc tcggtaattt 25560 25620 gcattttcgt agcatacttc gcagcagcag caaagcaacc gagtatttaa tgataccaca ccgcagcata atgctcgact gggcgccggt tcaataaaaa ttgaaaatgc actcaattcg 25680 25740 caattaagtg tcgccacttc cgtacggaca agcggacaaa cggacggaca agcggacaaa tggacggata aacggacgga tggatggtcg tcgaacgata ccattcaggc cattcaatcc 25800 25860 atteategea gteatectea ttattattte categteate gtggtegttg etggteggag ttaagcgatg gccatcgatt taatatccga tgagatattc ataacttgca attaggtttg 25920 gtggctctgc gctttacgta aatgattgcg tagccgatta atgaagaatt accagtgcaa 25980 26040 atggctggga tctgtgggca ttatccaatt gaccaactac catgctaccc cactaccatt accattacca taatgtgcaa tgtgccaatt gggctcaaat taaaagtttt attaattgtc 26100 aattaaacgc tgtcgcccag cagctgcttt gtggcataat ttttgggtca atctgcatat 26160 ctgattaaca ggttataccg ctcagtctac tacatatacc atgcaccaga tgccgcgggg 26220 cacagacaac aagaagtaaa agaaaggacc ccatatggtg ccgacggctc aagtgattaa 26280 gtgcacgacg agatettcaa atgcagtgca acatgtgcac aaatacaaaa cacacacac 26340 cacacacaca cacgcatatt gaaaatgtat gtaaattcta attaagattg tggatgaaga 26400 cccccagcac cttgatactt ctgctcaatg cgcattgcgc atgcgcagcc ccgcatccga 26460 agatccataa aaatagctca ctaattattt gtgtgctagg gttacagttc tcataaaaaa 26520 caaacaaact gtcgggcgtt ttatggatct tctgcctcta tggcctcaat gcccccgcga 26580 agttttcgat ccccattcga ttcgaaaccg aagaagagct acgaccaatc acttttcaat 26640 tcctatgagc agttgagcat caattgattt cgatatgaaa ataaaataca tttatttatt 26700

atcacattac g	gtatcacage	cattcgcccg	cctacgccct	ggcatctgga	tegecacate	26760
catcgtgcgg a	accttgtgcc	ggcatttccg	agctgattag	cctccgaatc	tcgaccagaa	26820
cccggtccgt t	cgagcctcc	aggttgtcga	gggcggtgtt	taggtcatcc	aagctggaat	26880
tgactctggc c	catcagacgc	tccgagttgt	tggtcagctc	gatgaggtca	tcgaaactgc	26940
tggcctggcg a	ctctccatc	gatatcctgt	ccagatccag	ctgcagctgc	tcatcggcgc	27000
tgtccatctg g	gctttaagg	gctggaaaac	aactttcgat	ttaaatttaa	attttttca	27060
ccctaaatca t	gattttcgg	tgttattttg	tgccatgcga	tccgaagtgt	aaagcaaatt	27120
tgacttggtt t	gttttgcta	tcgaacataa	ttaaagttgc	ttaccataaa	ccaatttaat	27180
ttaattgtaa t	tgcagctaa	ctggcttttg	ggtacttttg	cttttaacgc	caaatgtgaa	27240
atattaagta t	attttattt	aagcgatggc	acctgtaaat	tgagatttaa	gggggtatat	27300
taaatgggtg a	acttgatga	tttttttt	tcatcaaacg	tttattaaag	tctattgctt	27360
aaaaaaatga a	agtaaattg	cttgccattt	taggaggata	tttttgaaaa	atcgttacaa	27420
ctttt						27425

<210> 19

<400> 19

<400> 19						
gaattcggca	cgagacgcca	tacaaaaagt	tggaactgag	tggaatcgga	gtactatata	60
gccagccgat	cccttccaga	gcgccggaag	agtagctcac	atccgaaccc	acgtccccga	120
gccgatgtcg	cggcgggaat	agagcgattc	gcagtccaaa	cacgatgata	aaccccattg	180
catccgagtc	ggaggccatc	aattcggcca	cctatgtgga	caactatatc	gattcggtgg	240
aaaatctgcc	ggacgacgtg	cagcgccagt	tgtcacgcat	ccgcgacata	gacgtccagt	300
acagaggcct	cattcgcgac	gtagaccact	actacgacct	gtatctgtcc	ctgcagaact	360
ccgcggatgc	cgggcgacgg	tctcgaagca	tctccaggat	gcaccagagt	ctcattcagg	420
cgcaggaact	gggcgacgaa	aaaatgcaga	tcgtcaatca	tatgcaggag	ataatcgacg	480
gcaagctgcg	ccagctggac	accgaccagc	agaacetgga	cctgaaggag	gaccgcgatc	540
ggtatgcgct	cctggacgat	ggcacgcctt	cgaagctgca	acgcctgcag	agcccgatga	600
gggagcaggg	caaccaagcg	ggcactggca	acggtggcct	aaatggaaac	ggcctgcttt	660
cggccaaaga	tctgtacgcc	ttgggcggct	atgcaggtgg	tgttgtgcct	ggttctaatg	720

<211> 1781

<212> DNA

<213> Drosophila melanogaster

ccatgacctc	cggcaacggt	ggcggctcaa	cgcccaactc	ggagcgctcg	agccatgtca	780
gtaatggtgg	caacagcggc	tccaatggca	atgccagcgg	cggaggaggc	ggagaactgc	840
agcgcacagg	tagcaagcgg	tcgaggaggc	gaaacgagag	tgttgttaac	aacggaagct	900
ctctggagat	gggcggcaac	gagtccaact	cggcaaatga	agccagtggc	agtggtggtg	960
gcagtggcga	gcgcaaatcc	tcgttgggcg	gtgccagtgg	agcgggacag	ggacgaaagg	1020
ccagtctgca	gtcggcttct	ggcagtttgg	ctagcggctc	tgcagccacg	agcagtggag	1080
cagccggagg	tggtggtgcc	aacggagccg	gcgtagttgg	tggcaataat	tccggcaaga	1140
agaaaaagcg	caaggtacgc	ggttctgggg	cttcaaatgc	caatgccagt	acgcgagagg	1200
agacgccgcc	gccggagacc	attgatccgg	acgagccgac	ctactgtgtc	tgcaatcaga	1260
tctcctttgg	cgagatgatc	ctgtgcgaca	atgacctgtg	ccccatcgag	tggttccatt	1320
tttcgtgcgt	ctccctggta	ctaaaaccaa	aaggcaagtg	gttctgcccc	aactgccgcg	1380
gagaacggcc	aaatgtaatg	aaacccaagg	cgcagttcct	caaagaactg	gagcgctaca	1440
acaaggaaaa	ggaggagaag	acctagtcta	ttaggccagc	ctatccaacc	cattgctctg	1500
tgtctaacac	caggctctgt	aaaatattcg	atcctaagat	ttaccttaat	gtatatttag	1560
tgactttctt	agacccgatc	ccttttcgac	tttcccctct	ttcacccagt	ttagatccct	1620
cgcttctatg	gttataggtc	gtcagttttc	atttaaagtt	tctgtacaaa	caatatcttt	1680
ctcaatgtaa	acacacaaaa	actcgtataa	ttagagtaca	cctaaactta	atttatggta	1740
ataaacgttg	atattcaaaa	aaaaaaaaa	aaaaaactcg	a		1781

<210> 20

Met Ile Asn Pro Ile Ala Ser Glu Ser Glu Ala Ile Asn Ser Ala Thr 1 5 10 15

Tyr Val Asp Asn Tyr Ile Asp Ser Val Glu Asn Leu Pro Asp Asp Val 20 25 30

Gln Arg Gln Leu Ser Arg Ile Arg Asp Ile Asp Val Gln Tyr Arg Gly 35 40 45

Leu Ile Arg Asp Val Asp His Tyr Tyr Asp Leu Tyr Leu Ser Leu Gln 50 55 60

<211> 433

<212> PRT

<213> Drosophila melanogaster

<400> 20

Asn Ser Ala Asp Ala Gly Arg Arg Ser Arg Ser Ile Ser Arg Met His Gln Ser Leu Ile Gln Ala Gln Glu Leu Gly Asp Glu Lys Met Gln Ile Val Asn His Met Gln Glu Ile Ile Asp Gly Lys Leu Arg Gln Leu Asp Thr Asp Gln Gln Asn Leu Asp Leu Lys Glu Asp Arg Asp Arg Tyr Ala 115 Leu Leu Asp Asp Gly Thr Pro Ser Lys Leu Gln Arg Leu Gln Ser Pro Met Arg Glu Gln Gly Asn Gln Ala Gly Thr Gly Asn Gly Gly Leu Asn Gly Asn Gly Leu Leu Ser Ala Lys Asp Leu Tyr Ala Leu Gly Gly Tyr 170 165 Ala Gly Gly Val Val Pro Gly Ser Asn Ala Met Thr Ser Gly Asn Gly Gly Gly Ser Thr Pro Asn Ser Glu Arg Ser Ser His Val Ser Asn Gly Gly Asn Ser Gly Ser Asn Gly Asn Ala Ser Gly Gly Gly Gly Gly Glu 215 Leu Gln Arg Thr Gly Ser Lys Arg Ser Arg Arg Arg Asn Glu Ser Val 230 Val Asn Asn Gly Ser Ser Leu Glu Met Gly Gly Asn Glu Ser Asn Ser 245 250 Ala Asn Glu Ala Ser Gly Ser Gly Gly Ser Gly Glu Arg Lys Ser Ser Leu Gly Gly Ala Ser Gly Ala Gly Gln Gly Arg Lys Ala Ser Leu Gln Ser Ala Ser Gly Ser Leu Ala Ser Gly Ser Ala Ala Thr Ser Ser Gly Ala Ala Gly Gly Gly Ala Asn Gly Ala Gly Val Val Gly Gly 305 310 315 Asn Asn Ser Gly Lys Lys Lys Lys Arg Lys Val Arg Gly Ser Gly Ala Ser Asn Ala Asn Ala Ser Thr Arg Glu Glu Thr Pro Pro Pro Glu Thr 340 350 Ile Asp Pro Asp Glu Pro Thr Tyr Cys Val Cys Asn Gln Ile Ser Phe 355 360 365

£ (#

Gly Glu Met Ile Leu Cys Asp Asn Asp Leu Cys Pro Ile Glu Trp Phe 370 375 380

His Phe Ser Cys Val Ser Leu Val Leu Lys Pro Lys Gly Lys Trp Phe 385 390 395 400

Cys Pro Asn Cys Arg Gly Glu Arg Pro Asn Val Met Lys Pro Lys Ala 405 410 415

Gln Phe Leu Lys Glu Leu Glu Arg Tyr Asn Lys Glu Lys Glu Glu Lys 420 425 430

Thr

<210> 21

<211> 2666

<212> DNA

<213> Drosophila melanogaster

<400> 21 60 cattttgtac agtctaaacg gggattcgcg taaactacgc agaaatataa acaaacaaaa actagtagac tatagaatat aaacagtttc ctaccaatgg agacttgtga agtggaggga 120 180 gaggeggaga egetggtgag aegettetee gteagetgeg ageaattgga getggaageg 240 agaattcagc aaagcgctct gtccacctac catcgcttgg atgcggtcaa cgggctgtcc 300 accagegagg cagatgeeca ggagtggetg tgttgegeeg tetacagega actgeagege 360 tegaagatge gegatattag ggagteeate aacgaggeaa acgatteggt ggeeaagaac 420 tgctgctgga acgtgtcact aacccgtctg ctgcgcagct ttaagatgaa cgtgtcccag tttctacgcc gcatggagca ctggaattgg ctgacccaaa acgagaacac tttccagctg 480 540 gaggttgagg aactgcgttg tcgacttggt attacttcga cgctgctgcg gcattataag 600 cacatctttc ggagcctgtt cgttcacccg gcaagggtgc ggacccgggt gccgcgaatc actaccaagc gctgtatgag ttcggttggt tgctcttcct ggtcattcgc aacgagttac 660 720 ccggttttgc gattacaaac ctgatcaacg gctgtcaggt gctcgtttgc acaatggatc 780 tccttttcgt gaacgcctta gaggtgcccc gatccgtagt tatccgccgg gagttctctg gagtgcccaa gaattgggac accgaagact tcaatcctat tttgctaaat aaatatagcg 840 900 tgctagaagc actgggagaa ctgattcccg agctaccagc gaagggagtg gtgcaaatga 960 agaacgcctt tttccacaaa gccttaataa tgctctatat ggaccatagt ctagttggag 1020 acgacaccca tatgcgggag atcattaagg agggtatgct agatatcaat ctggaaaact

taaatcgcaa atacaccaat caagtagccg acattagtga gatggacgag cgtgtgctgc

1080

as it god a

£ (10)

tcagcgtcca	gggggcgata	gagaccaaag	gggactctcc	taaaagccca	cagctcgcct	1140
tccaaacaag	ctcgtcacct	tcgcatagga	agctgtccac	ccatgatcta	ccagcaagtc	1200
ttcccctaag	cattataaaa	gcattcccca	agaaggaaga	cgcagataaa	attgtaaatt	1260
atttagatca	aactctggaa	gaaatgaatc	ggacctttac	catggccgtg	aaagattttt	1320
tggatgctaa	gttgtctgga	aaacgattcc	gccaggccag	aggcctttac	tacaaatatt	1380
tgcagaaaat	tttgggaccg	gagctggttc	aaaaaccaca	gctgaagatt	ggtcagttaa	1440
tgaagcagcg	caagcttacc	gccgccctgt	tagcttgctg	cctggaactg	gcacttcacg	1500
tccaccacaa	actagtggaa	ggcctaaggt	ttccctttgt	cctgcactgc	ttttcactgg	1560
acgcctacga	ctttcaaaag	attctagagt	tggtggtgcg	ctacgatcat	ggttttctgg	1620
gcagagagct	gatcaagcac	ctggatgtgg	tggaggaaat	gtgcctggag	tcgttgattt	1680
tccgcaagag	ctcacagctg	tggtgggagc	taaatcaaag	acttccccgc	tacaaggaag	1740
tcgatgcaga	aacagaagac	aaggagaact	tttcaacagg	ctcaagcatc	tgccttcgaa	1800
agttctacgg	actggccaac	cggcggctgc	tccttctgtg	taagagtctt	tgcctcgtgg	1860
attcctttcc	ccaaatatgg	cacctggccg	agcactcttt	caccttagag	agtagccgtc	1920
tgctccgcaa	tcgacacctg	gaccaactgc	tgttgtgcgc	catacatctt	catgttcggc	1980
tcgagaagct	tcacctcact	ttcagcatga	ttatccagca	ctatcgccga	cagccgcact	2040
ttcggagaag	cgcttaccga	gaggttagct	tgggcaatgg	tcagaccgct	gatattatca	2100
ctttctacaa	cagtgtgtat	gtccaaagta	tgggcaacta	tggccgccac	ctggagtgtg	2160
cgcaaacacg	caagtcactg	gaagaatcac	agagtagcgt	tggtattctg	acggaaaaca	2220
acttccaacg	aattgagcat	gagagccaac	atcagcatat	cttcaccgcc	ccctcccagg	2280
gtatgccaaa	gtggctcctg	ctccagtcat	ccaccttcat	ctcccgccgc	atcaccactt	2340
tccttgcaaa	gctcgcccaa	cgtaaagcgt	gctgcttcga	gtaacgactt	gatgagagag	2400
atcaagcgac	caaacatcct	gcggcgtcgc	cagctttcag	tgatctaata	accaatcaaa	2460
aaaggcttaa	atacttggct	gcattttacg	cagctagctt	agtatatttc	ttaaactcaa	2520
aaatggtaat	taaataatgt	ttaaattata	gatattttat	taacttgttc	aagtaagtta	2580
aaagcttttg	cttttgtaaa	aataaaggaa	taactgccac	tcgtagttta	aataaatttt	2640
taaaaaaaaa	aaaaaaaaa	ctcgag				2666

<210> 22 <211> 556 <212> PRT

<213> Drosophila melanogaster

<400> 22

Met Asp Leu Peu Phe Val Asn Ala Leu Glu Val Pro Arg Ser Val Val 1 5 10 15

Ile Arg Arg Glu Phe Ser Gly Val Pro Lys Asn Trp Asp Thr Glu Asp 20 25 30

Phe Asn Pro Ile Leu Leu Asn Lys Tyr Ser Val Leu Glu Ala Leu Gly 35 40 45

Glu Leu Ile Pro Glu Leu Pro Ala Lys Gly Val Val Gln Met Lys Asn 50 55 60

Ala Phe Phe His Lys Ala Leu Ile Met Leu Tyr Met Asp His Ser Leu 65 70 75 80

Val Gly Asp Asp Thr His Met Arg Glu Ile Ile Lys Glu Gly Met Leu 85 90 95

Asp Ile Asn Leu Glu Asn Leu Asn Arg Lys Tyr Thr Asn Gln Val Ala 100 105 110

Asp Ile Ser Glu Met Asp Glu Arg Val Leu Leu Ser Val Gln Gly Ala 115 120 125

Ile Glu Thr Lys Gly Asp Ser Pro Lys Ser Pro Gln Leu Ala Phe Gln 130 135 140

Thr Ser Ser Ser Pro Ser His Arg Lys Leu Ser Thr His Asp Leu Pro 145 150 155 160

Ala Ser Leu Pro Leu Ser Ile Ile Lys Ala Phe Pro Lys Lys Glu Asp 165 170 175

Ala Asp Lys Ile Val Asn Tyr Leu Asp Gln Thr Leu Glu Glu Met Asn 180 185 190

Arg Thr Phe Thr Met Ala Val Lys Asp Phe Leu Asp Ala Lys Leu Ser 195 200 205

Gly Lys Arg Phe Arg Gln Ala Arg Gly Leu Tyr Tyr Lys Tyr Leu Gln 210 215 220

Lys Ile Leu Gly Pro Glu Leu Val Gln Lys Pro Gln Leu Lys Ile Gly 225 230 235 240

Gln Leu Met Lys Gln Arg Lys Leu Thr Ala Ala Leu Leu Ala Cys Cys 245 250 255

Leu Glu Leu Ala Leu His Val His His Lys Leu Val Glu Gly Leu Arg 260 270

Phe Pro Phe Val Leu His Cys Phe Ser Leu Asp Ala Tyr Asp Phe Gln

275 280 285

Lys Ile Leu Glu Leu Val Val Arg Tyr Asp His Gly Phe Leu Gly Arg 295 Glu Leu Ile Lys His Leu Asp Val Val Glu Glu Met Cys Leu Glu Ser Leu Ile Phe Arg Lys Ser Ser Gln Leu Trp Trp Glu Leu Asn Gln Arg Leu Pro Arg Tyr Lys Glu Val Asp Ala Glu Thr Glu Asp Lys Glu Asn Phe Ser Thr Gly Ser Ser Ile Cys Leu Arg Lys Phe Tyr Gly Leu Ala Asn Arg Arg Leu Leu Leu Cys Lys Ser Leu Cys Leu Val Asp Ser Phe Pro Gln Ile Trp His Leu Ala Glu His Ser Phe Thr Leu Glu Ser 395 Ser Arg Leu Leu Arg Asn Arg His Leu Asp Gln Leu Leu Cys Ala 405 410 Ile His Leu His Val Arg Leu Glu Lys Leu His Leu Thr Phe Ser Met 420 425 Ile Ile Gln His Tyr Arg Arg Gln Pro His Phe Arg Arg Ser Ala Tyr 435 440 Arg Glu Val Ser Leu Gly Asn Gly Gln Thr Ala Asp Ile Ile Thr Phe Tyr Asn Ser Val Tyr Val Gln Ser Met Gly Asn Tyr Gly Arg His Leu 465 Glu Cys Ala Gln Thr Arg Lys Ser Leu Glu Glu Ser Gln Ser Ser Val Gly Ile Leu Thr Glu Asn Asn Phe Gln Arg Ile Glu His Glu Ser Gln His Gln His Ile Phe Thr Ala Pro Ser Gln Gly Met Pro Lys Trp Leu 520 Leu Leu Gln Ser Ser Thr Phe Ile Ser Arg Arg Ile Thr Thr Phe Leu 535 Ala Lys Leu Ala Gln Arg Lys Ala Cys Cys Phe Glu

550

34